



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/468,450	12/21/1999	ARTHUR W. CHESTER	10208-1	3654

7590 05/15/2003

W.R. GRACE & COMPANY
PATENT DEPARTMENT
7500 GRACE DRIVE
COLUMBIA, MD 21044-4098

EXAMINER

NORTON, NADINE GEORGIANNA

ART UNIT	PAPER NUMBER
----------	--------------

1764

DATE MAILED: 05/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/468,450

Applicant(s)

CHESTER ET AL.

Examiner

Nadine Norton

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6 and 9 is/are rejected.
- 7) ☒ Claim(s) 7 and 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Kearby (3,271,299).

Applicants are claiming a process for the catalytic cracking a hydrocarbon feedstock. The process comprises contacting the feedstock with a catalyst composition comprising an amorphous aluminophosphate material. The material is modified with at least one element selected from zirconium, cerium, lanthanum, manganese, cobalt, zinc, and vanadium. The mesoporous material has a specific surface area of at least 100 m²/g and an average pore diameter less than or equal to 100 Å.

The reference of Kearby (3,271,299) discloses a composition suitable for use in fluid catalytic cracking. See column 1, lines 16-21. The composition is an "amorphous" aluminophosphate composition with a surface area of 428 m²/g, a pore volume of 0.655 g/cc, and a pore diameter of 72 angstroms. See column 2, lines 60-71. Kearby (3,271,299) also teaches that the composition can include cobalt. See column 1, lines 23-28. The disclosed composition can also contain alumina (Al₂O₃). See column 13, line 1.

The reference of Kearby (3,271,299) succeeds in disclosing a composition meeting applicants' amorphous aluminophosphate and primary cracking component limitations. The catalyst contains aluminophosphate and alumina. Therefore, it is considered to meet applicants'

Art Unit: 1764

aluminophosphate and primary cracking component in the form of alumina. Since alumina is a known cracking component, it is considered to meet the limitation of a primary cracking component in addition to an aluminophosphate.

Applicants' cracking process is anticipated by Kearby (3,271,299) because it discloses essentially the same catalytic cracking step and aluminophosphate/cracking component containing catalyst claimed by applicants.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kearby (3,271,299).

See teachings of Kearby (3,271,299) above.

A difference is noted between the reference of Kearby (3,271,299) and applicants' claimed invention. The reference of Kearby does not disclose the ratio of aluminophosphate to the catalyst components meeting applicants' primary cracking material limitation.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ any proportion of components in the reference of Kearby (3,271,299), including applicants' specifically claimed proportions, because it has been held that there is no invention where the difference in proportions is not critical and was ascertained by routine experimentation since the determination of workable ranges is not considered to be inventive. In re Swain and Adams, 70 USPQ 412 (CCPA 1946).

Claim Rejections - 35 USC § 103

Claims 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kearby (3,271,299) as applied to claims 1-4 and 6 above, and further in view of Zinnen (5,935,422).

See teachings of Kearby (3,271,299) above.

Another difference is noted between the reference of Kearby (3,271,299) and applicants' claimed invention. Kearby (3,271,299) is silent about the sulfur content of the FCC feed.

The reference of Zinnen (5,935,422) is cited to illustrate that cracking feeds routinely contain sulfur.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to treat a sulfur containing feed in the FCC process of Kearby (3,271,299) because the reference of Zinnen (5,935,422) illustrates that FCC feeds conventionally contain sulfur. The processing of a feed containing sulfur with a catalyst corresponding to that claimed by applicants would naturally accomplish the removal of sulfur.

Allowable Subject Matter

Claims 7 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art does not disclose or suggest a catalytic cracking process employing the catalyst comprising the combination of the specific amorphous aluminophosphate defined in applicants' claim 1 with a zeolite Y.

In addition, the prior art does not disclose or suggest a catalytic cracking process employing the combination of the specific amorphous aluminophosphate defined in applicants' claim 1 with a large pore molecular sieve having a pore size greater than about 7 angstrom.

Response to Arguments

Applicants' arguments filed 2-24-03 in paper no. 14 have been fully considered but they are not persuasive.

Applicants' arguments asserting that the reference of Kearby (3,271,299) does not suggest applicants' primary cracking component are not persuasive. Kearby (3,271,299) is considered to meet applicants' limitations because it discloses both an amorphous aluminophosphate and an alumina component (which is considered to meet applicants' cracking component limitation because alumina is a known cracking component). Applicants' remaining arguments are addressed in the modified rejection above.

Art Unit: 1764

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nadine Norton whose telephone number is 703-305-2667. The examiner can normally be reached on Monday through Thursday from 8:30 am to 7:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0661.

N.N.

May 14, 2003

NADINE G. NORTON
PRIMARY EXAMINER

